



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/801,852	03/17/2004	Kyu-hee Han	1572.1212	3105
21171	7590	02/22/2006	EXAMINER	
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			BARNEY, SETH E	
			ART UNIT	PAPER NUMBER
			3752	

DATE MAILED: 02/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/801,852

Applicant(s)

HAN ET AL.

Examiner

Seth Barney

Art Unit

3752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7/1/05.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-4, 11, 12, 14-20, 22 and 25-29 is/are rejected.
- 7) ☒ Claim(s) 5-10, 13, 21, 23 and 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 11, 14, 15, 18-20, 26-29 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,851,294 to Young et al.

Regarding claim 1, Young discloses a gas supplying apparatus having a gas supplying ring (42) with a plurality of gas supplying channels (55) formed along the interior of the gas supplying ring and with a pluralist of gas distribution channels (56) directed towards a center of the gas supplying ring and a plurality of adapters (62) with gas nozzles (34) connecting to the gas distributing channels, respectively, that detachably connect (see column 5, lines 18 to 21) to the interior of the gas supplying ring, wherein the gas nozzles have a variety of injection configurations (see column 7 lines 2 to 21, the nozzles can be directed in different directions).

Regarding claim 2, the injection configuration is changed by changing an injection angle. See column 7 lines 2 to 21.

Regarding claim 3, each adapter comprises a gas connecting channel connecting to a respective gas distribution channels, wherein the gas supplying ring has a plurality of gas supplying channels, and the adapters have a vertical component. See Figure 4.

Regarding claim 11, Young discloses that the nozzles extend horizontally into the gas connecting channel toward a center of the gas connecting channel by stretch (60).

Regarding claims 14 and 15, Young discloses that the nozzles can be arranged as desired. See column 6 lines 7-16 and column 7 lines 2 to 22.

Regarding claim 18, the gas supplying ring comprises an upper part (64) and a lower part (65), the upper part and the lower part being combined to form the gas supplying channels. See Figure 4.

Regarding claim 19, the gas supplying channels provide different gases. See Figure 5.

Regarding claim 20, The gas supplying apparatus according to claim 19, wherein the gas supplying channels comprise a first gas supplying channel and a second gas supplying channel, and the gas distribution channels comprise a first gas distribution channel and a second gas distribution channel, wherein the first gas distribution channel connects to the first gas supplying channel to supply a first gas from the first gas supplying channel, and the second gas distribution channel connects to the second gas supplying channel to supply a second gas from the second gas supplying channel. See Figure 4.

Regarding claim 26, the nozzle is the size of the entire adapter and can be considered to be in an upper part or lower part of the adapter. The Examiner notes that an upper part and lower part of the adapter has not yet been distinctly claimed.

Regarding claim 27, Young discloses that the nozzles can be arranged as desired. See column 6 lines 7-16 and column 7 lines 2 to 22. Furthermore, the nozzle

Art Unit: 3752

is the size of the entire adapter and can be considered to be in an upper part or lower part of the adapter. Again the Examiner notes that an upper part and lower part of the adapter has not yet been distinctly claimed.

Regarding claim 28, Young discloses a gas supplying apparatus having a gas supplying ring (42), a gas supplying channel (55) formed in an interior of the gas supplying ring, and a plurality of gas distribution channels (50) connecting to the gas supplying ring, a plurality of adaptors (62) with gas nozzles (the outlet of tube 42, but not nozzle 34) respectively connecting to the gas distribution channels, the adapters detachably connecting to the interior of the gas supplying ring, and a plurality of supplemental gas nozzles (34) of which a variety (Figures 7A, 7B, 7C) can be implemented.

Regarding claim 29, Young discloses using the device to have as many or as few nozzles as desired, in any position desired in order to achieve the desired film uniformity, film composition, gas utilization, and wafer surface profile. See column 6 lines 7-43.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 4 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,851,294 to Young et al. as applied to claims 1 and 2 above, and further in view of U.S. Patent No. 6,197,683 to Kang et al.

Young discloses all of the limitations of the claim except for a valve blocking member. Different gases can supply each nozzle (see Figure 5). Kang discloses a chemical vapor deposition apparatus having valves (112) for different types of gases. See Figure 1. It would have been obvious to one having ordinary skill in the art at the time the invention was made to insert the valves of Kang into the gas supplying apparatus of Young in order to control gas flow.

6. Claims 12, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,851,294 to Young et al. in view of U.S. Patent No. 6,197,683 to Kang et al. as applied to claim 4 above.

Regarding claim 12, Young discloses that the nozzles extend horizontally into the gas connecting channel toward a center of the gas connecting channel by stretch (60).

Regarding claims 16 and 17, Young discloses that the nozzles can be arranged as desired. See column 6 lines 7-16 and column 7 lines 2 to 22.

Allowable Subject Matter

7. Claims 5-10, 13, 21, 23, and 24 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No. 6,818,249 to Derderian discloses a multigas depositor having a gas supplying ring with multiple nozzles.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seth Barney whose telephone number is (571)272-4896. The examiner can normally be reached on 7:30am-5:00pm (Mon-Fri), first friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Scherbel can be reached on (571)272-4919. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Seth Barney
Examiner
Art Unit 3752

sb



David A. Scherbel
Supervisory Patent Examiner
Group 3700